

F I G. 1

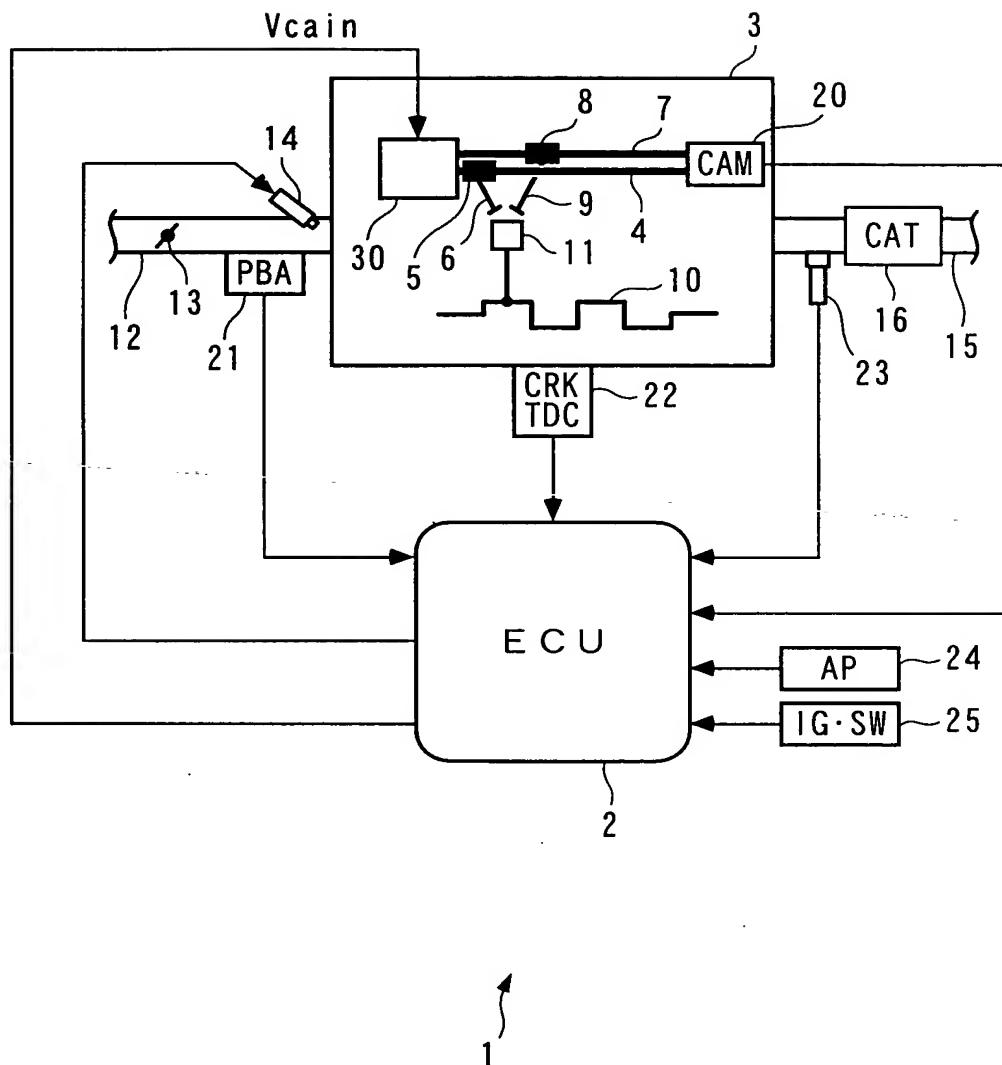
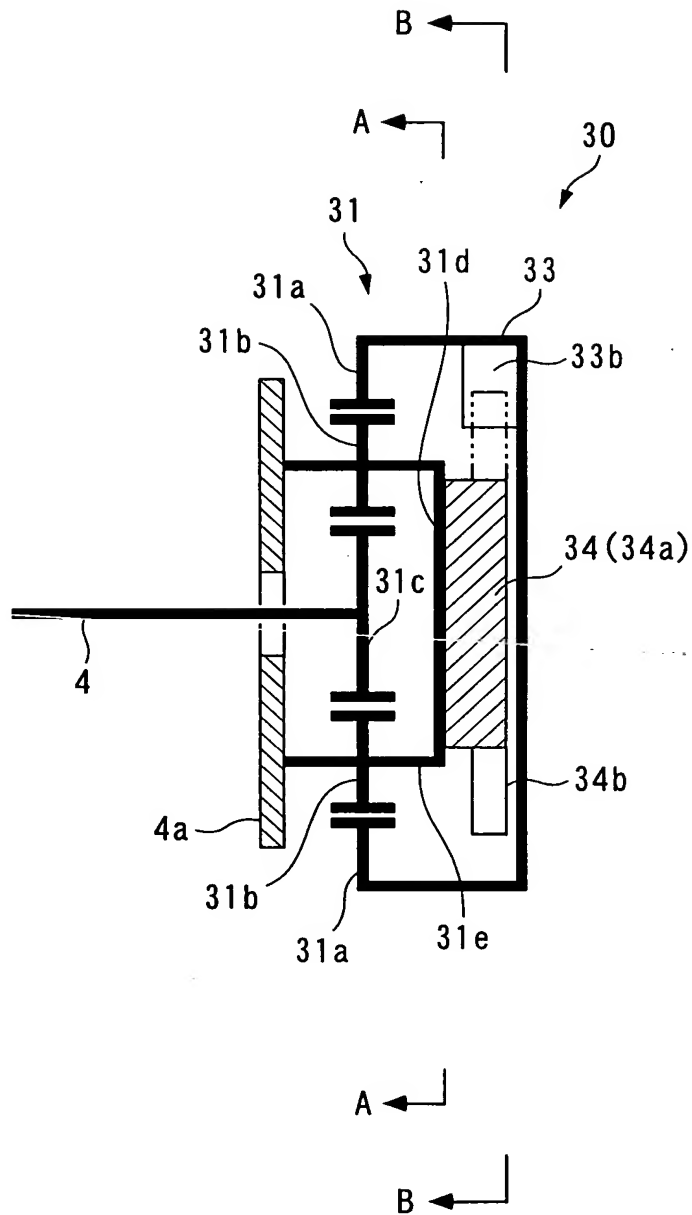
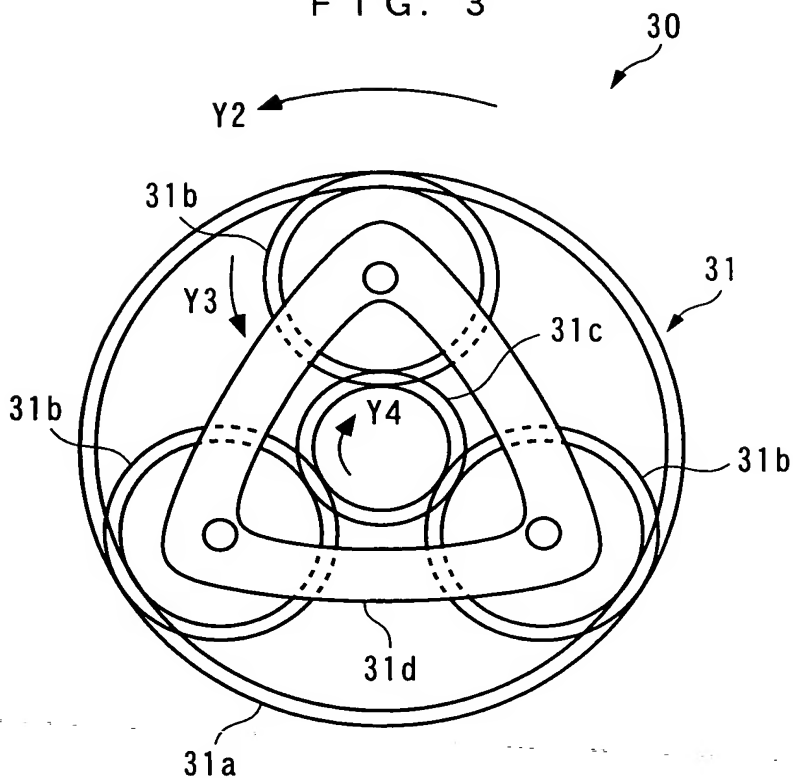


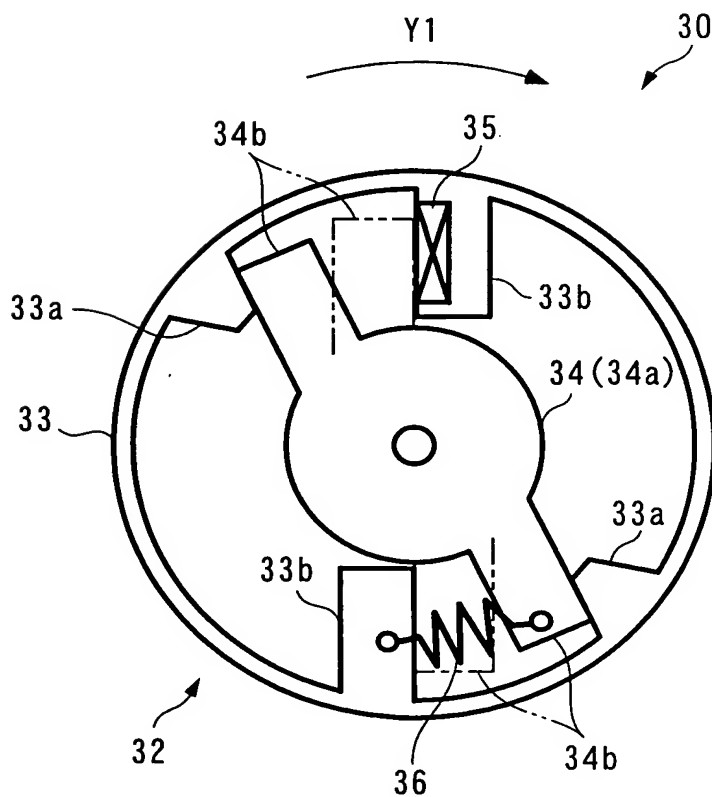
FIG. 2



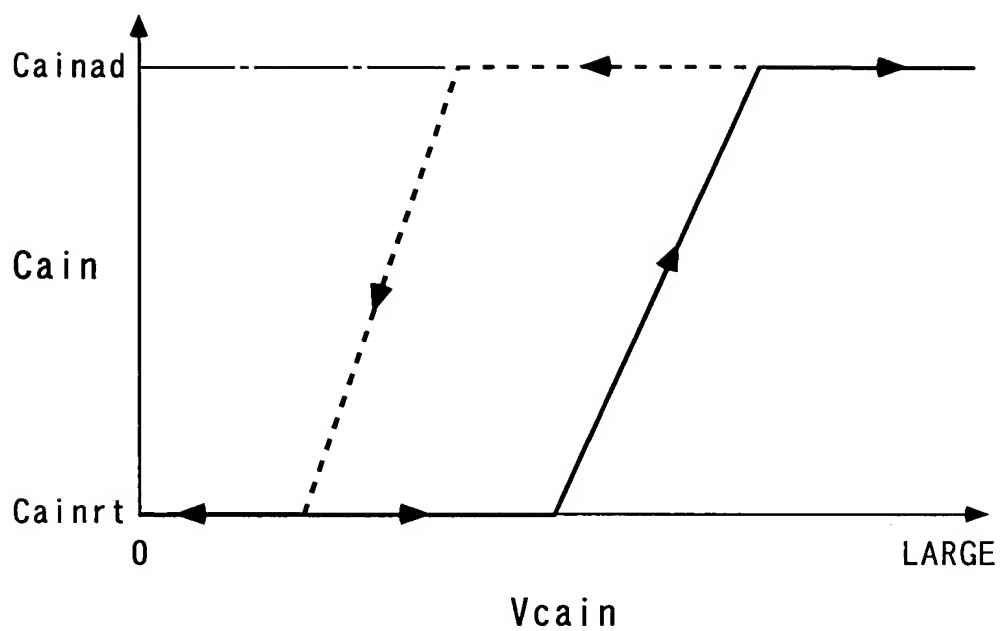
F I G. 3



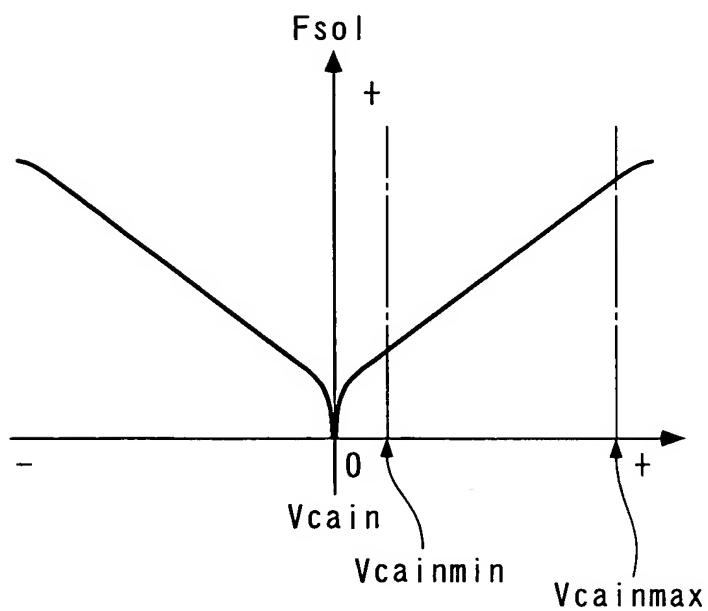
F I G. 4



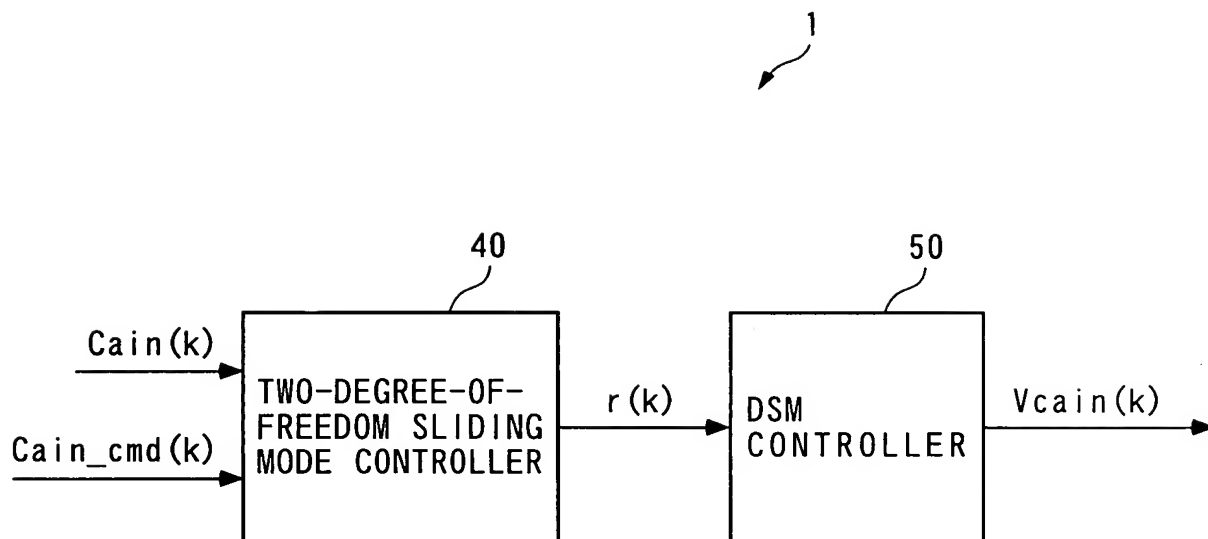
F I G. 5



F I G. 6



F I G . 7



F I G . 8

$$r(k) = rff(k) + rrch(k) + radp(k) + rdamp(k) \quad \dots\dots (1)$$

$$rff(k) = Cain_cmd_f(k) + (1 - POLE) \cdot Cain_cmd_f(k-1) - POLE \cdot Cain_cmd_f(k-2) \quad \dots\dots (2)$$

$$rrch(k) = -Krch \cdot \sigma s(k) \quad \dots\dots (3)$$

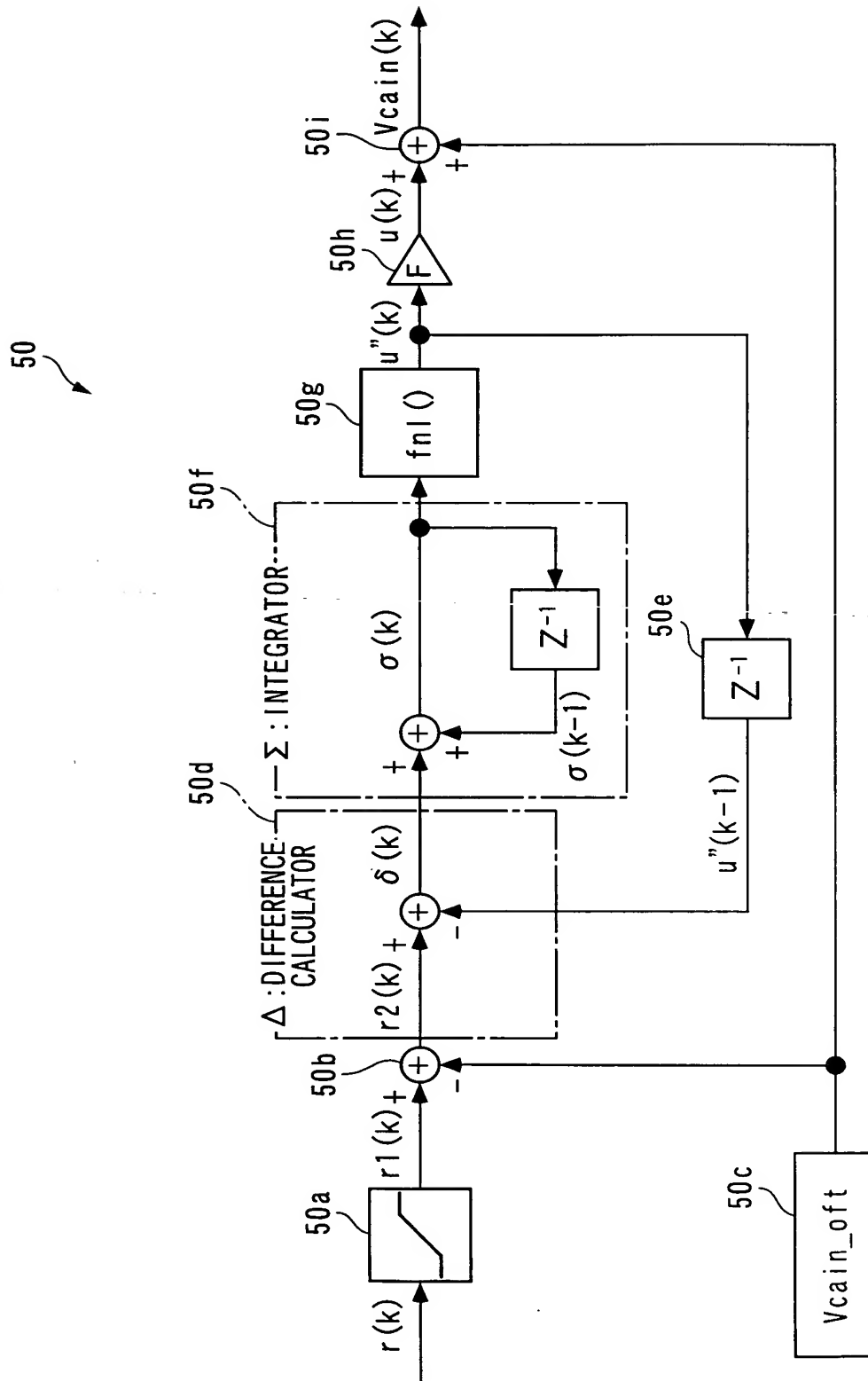
$$radp(k) = -Kadp \cdot \sum_{i=0}^k \sigma s(i) \quad \dots\dots (4)$$

$$rdamp(k) = -Kdamp \cdot [Cain(k) - Cain(k-1)] \quad \dots\dots (5)$$

$$\sigma s(k) = e(k) + POLE \cdot e(k-1) \quad \dots\dots (6)$$

$$e(k) = Cain(k) - Cain_cmd_f(k-1) \quad \dots\dots (7)$$

$$Cain_cmd_f(k) = -POLE_f \cdot Cain_cmd_f(k-1) + (1 + POLE_f) \cdot Cain_cmd(k) \quad \dots\dots (8)$$



F I G. 1 0

$$r1(k) = \text{Lim}(r(k)) \quad \dots\dots (9)$$

$$r2(k) = r1(k) - V_{\text{cain_oft}} \quad \dots\dots (10)$$

$$\delta(k) = r2(k) - u''(k-1) \quad \dots\dots (11)$$

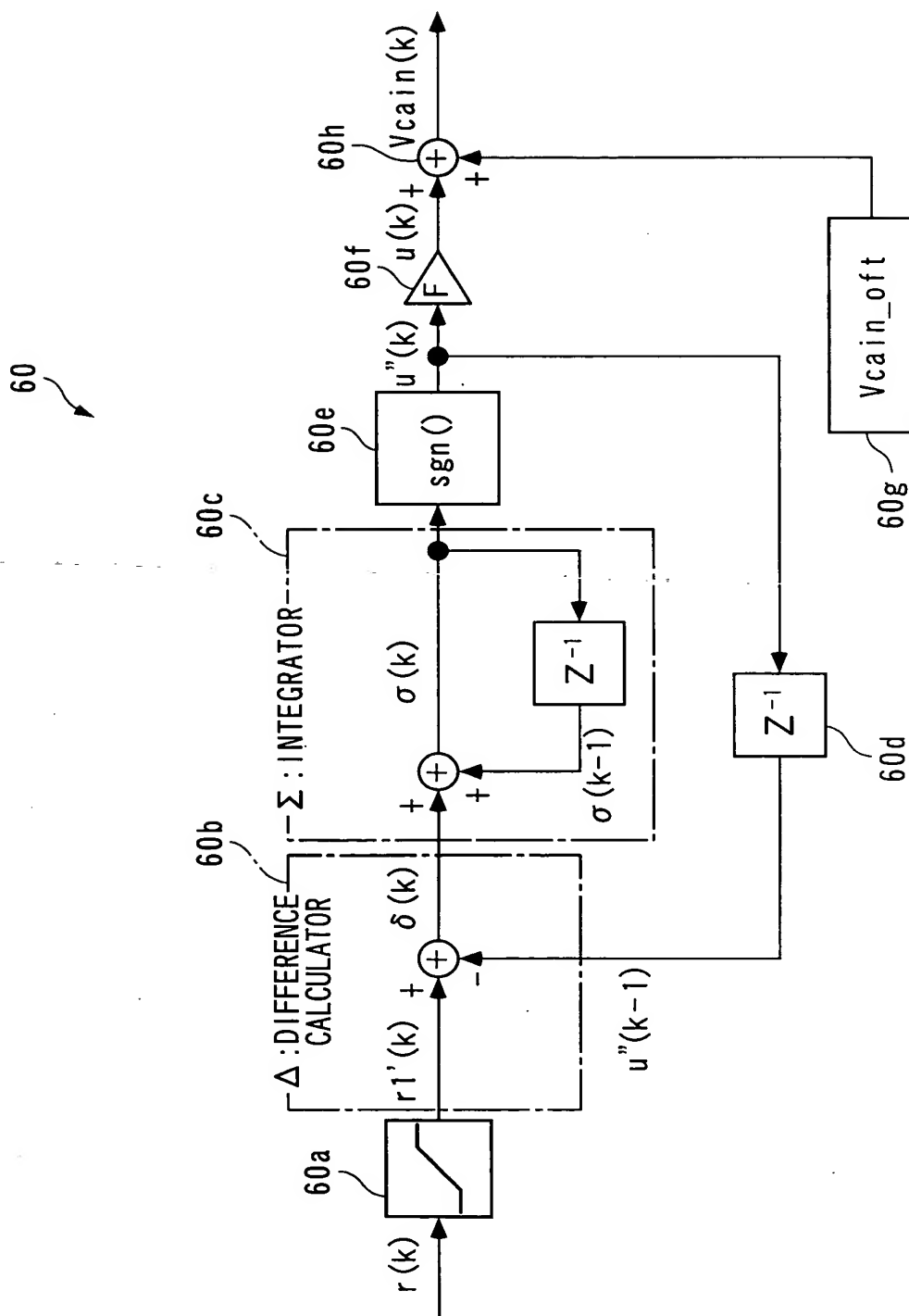
$$\sigma(k) = \sigma(k-1) + \delta(k) \quad \dots\dots (12)$$

$$u''(k) = \text{fnl}(\sigma(k)) \quad \dots\dots (13)$$

$$u(k) = K_{\text{DSM}} \cdot u''(k) \quad \dots\dots (14)$$

$$V_{\text{cain}}(k) = V_{\text{cain_oft}} + u(k) \quad \dots\dots (15)$$

FIG. 11



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$$r1'(k) = \text{sat}(r(k)) \quad \dots\dots (16)$$

$$\delta(k) = r1'(k) - u''(k-1) \quad \dots\dots (17)$$

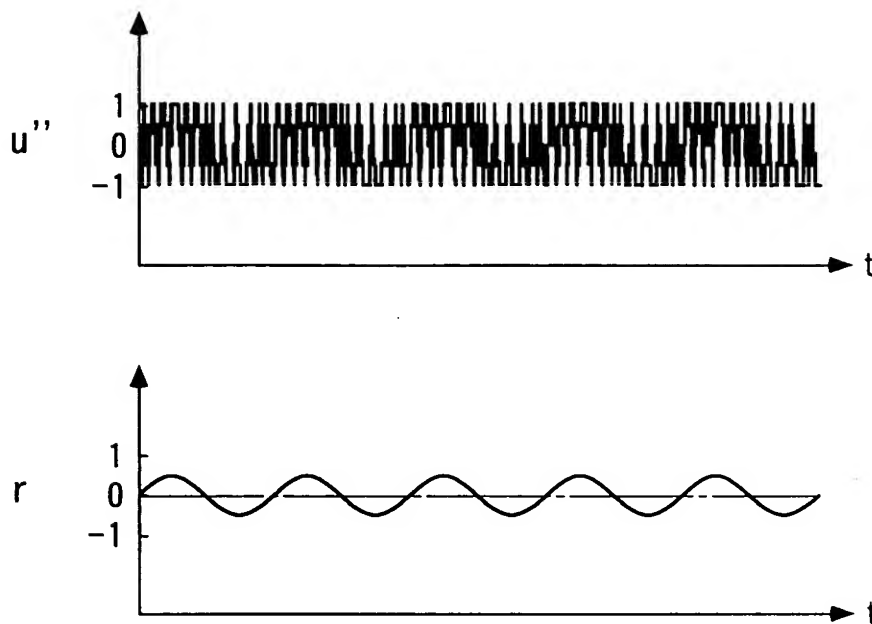
$$\sigma(k) = \sigma(k-1) + \delta(k) \quad \dots\dots (18)$$

$$u''(k) = \text{sgn}(\sigma(k)) \quad \dots\dots (19)$$

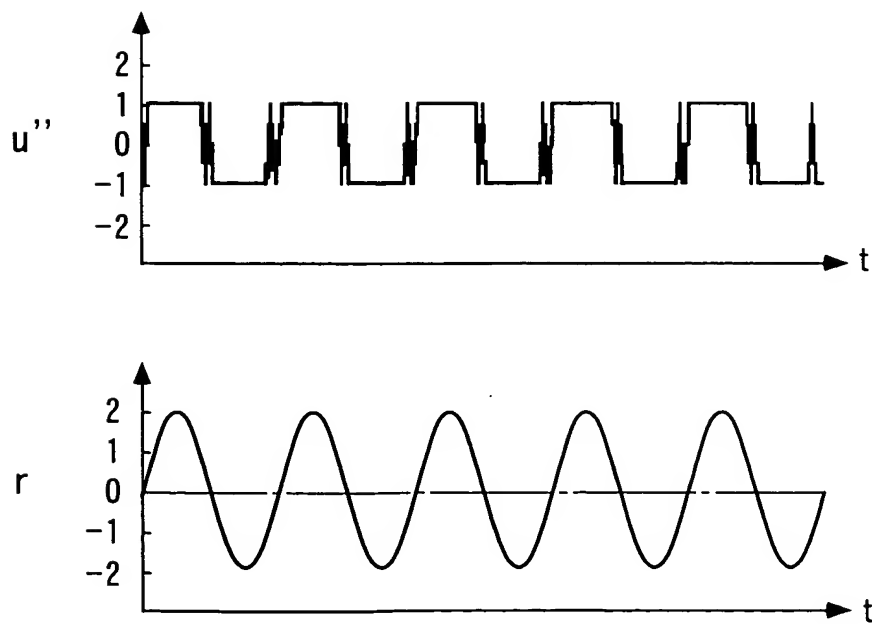
$$u(k) = KDSM \cdot u''(k) \quad \dots\dots (20)$$

$$Vcain(k) = Vcain_oft + u(k) \quad \dots\dots (21)$$

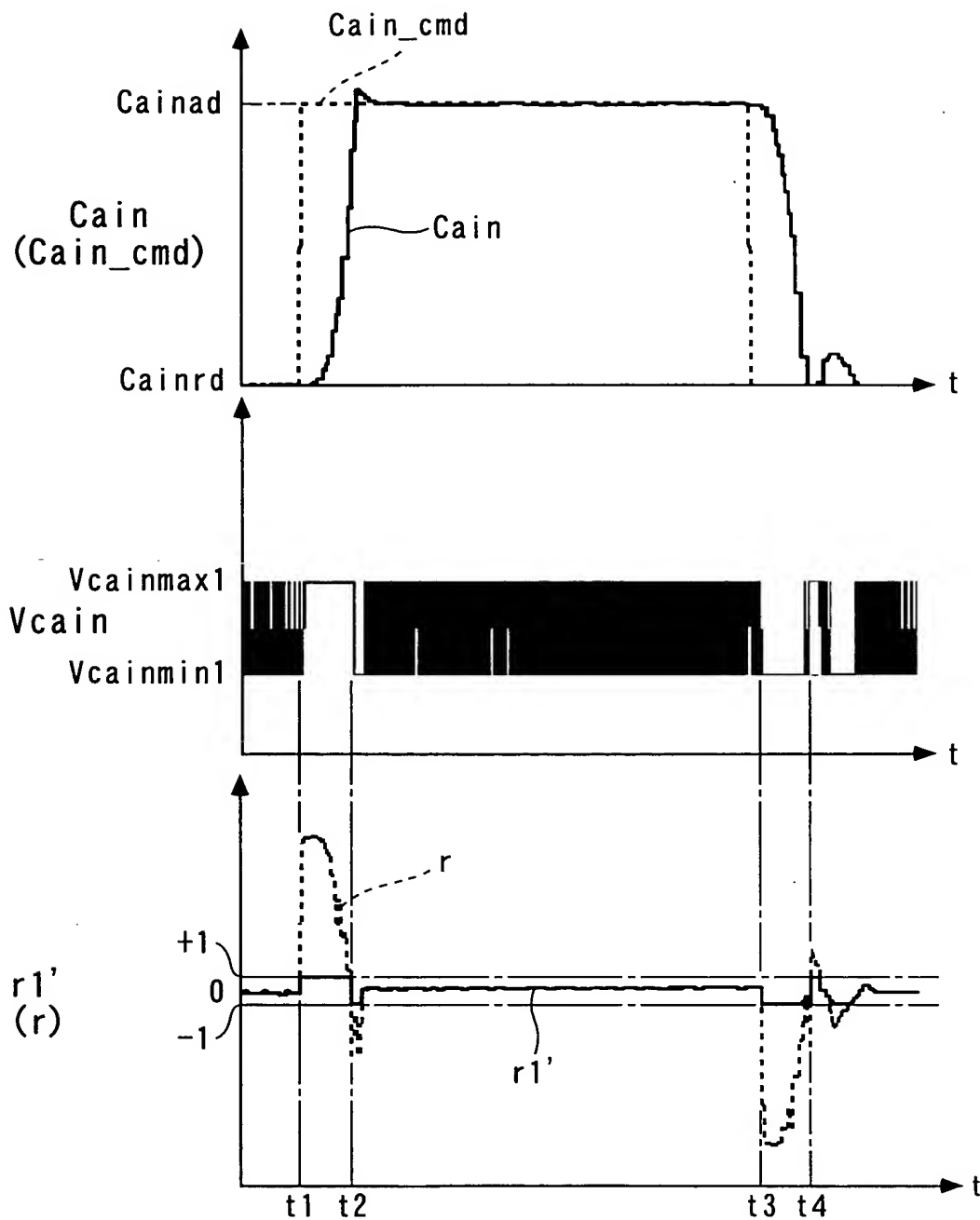
F I G. 1 3



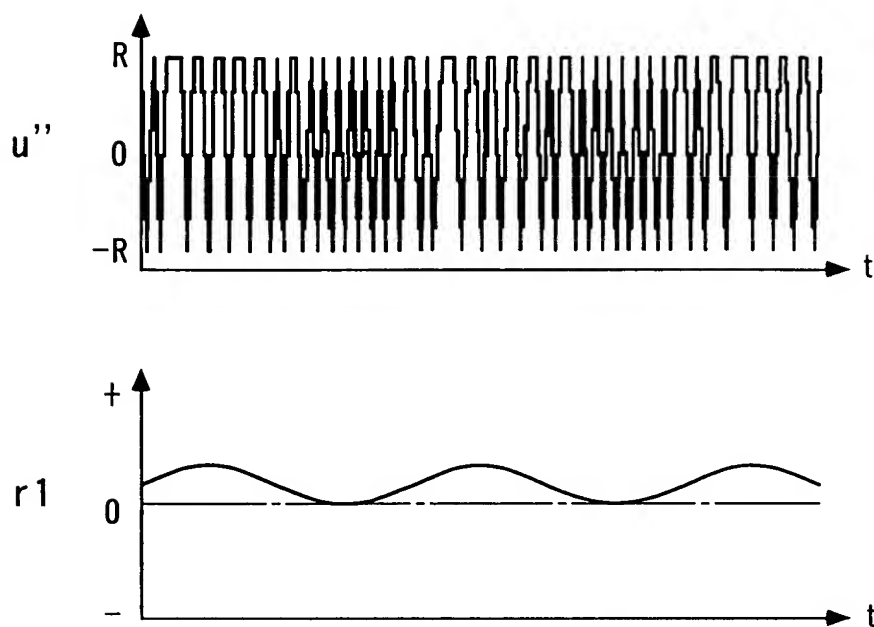
F I G. 1 4



F I G. 1 5



F I G. 1 6



F I G. 1 7

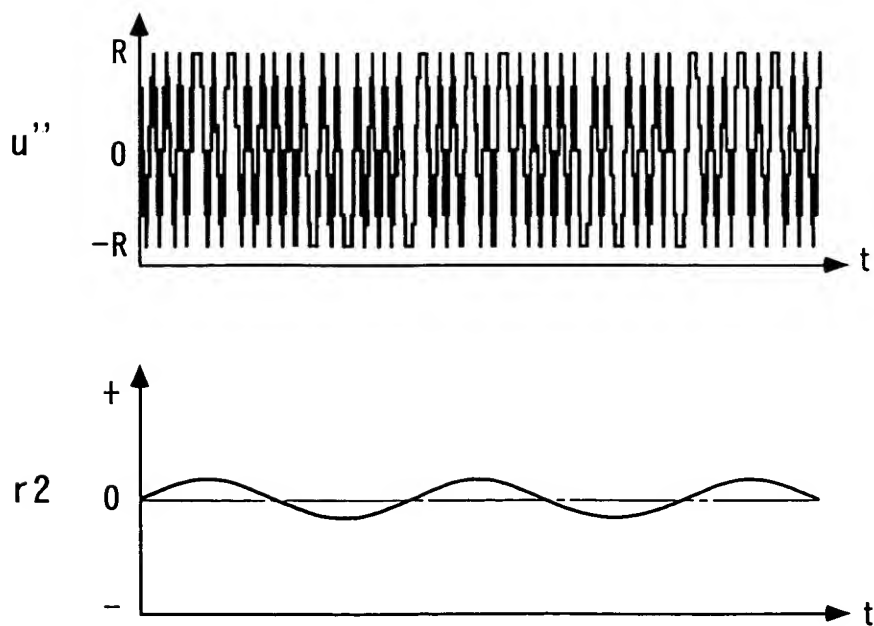
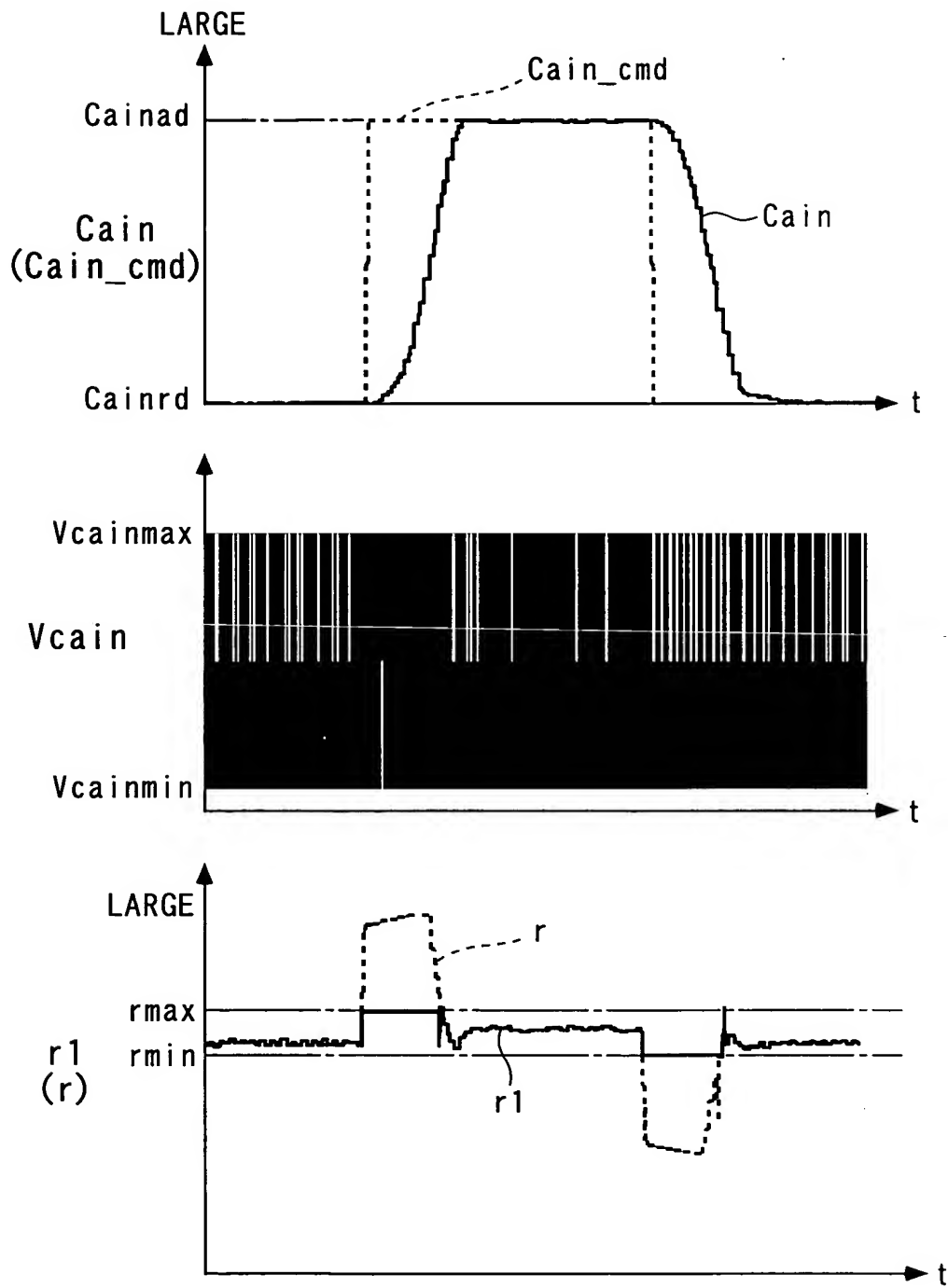
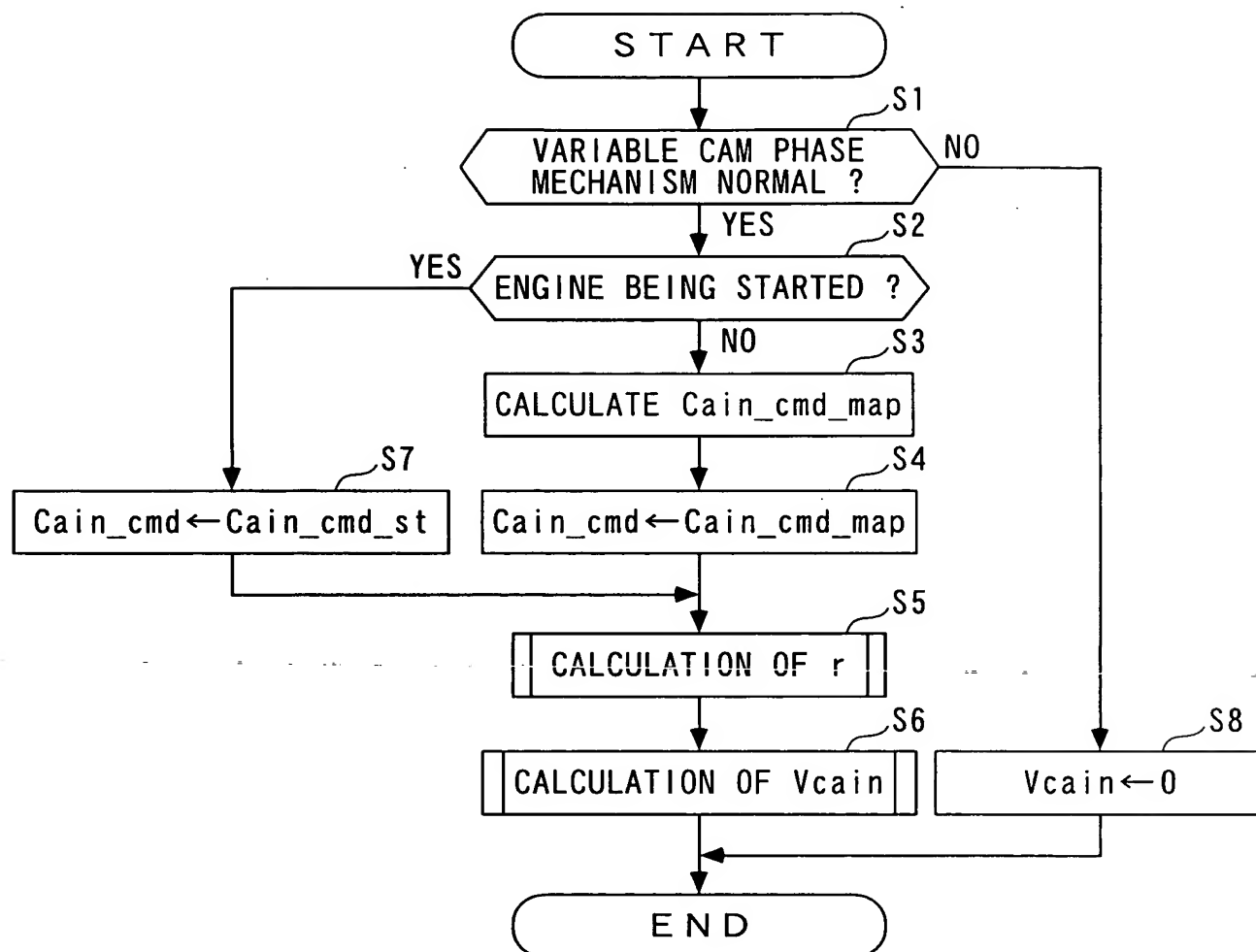


FIG. 18



F I G. 1 9



F I G. 2 0

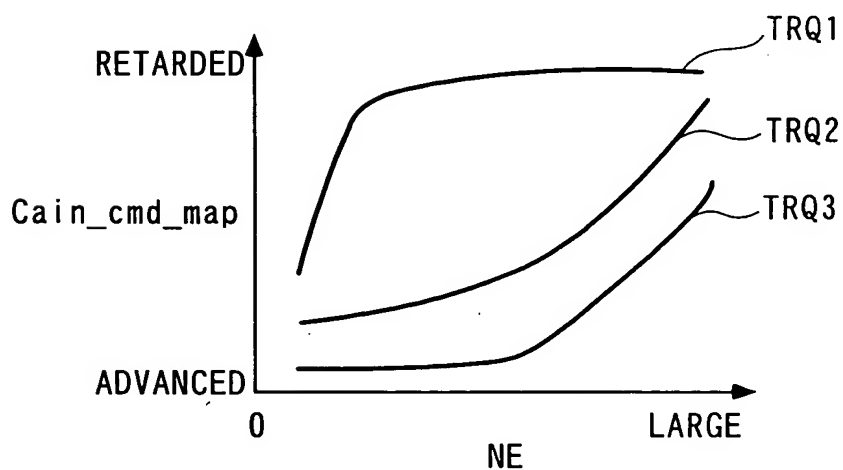
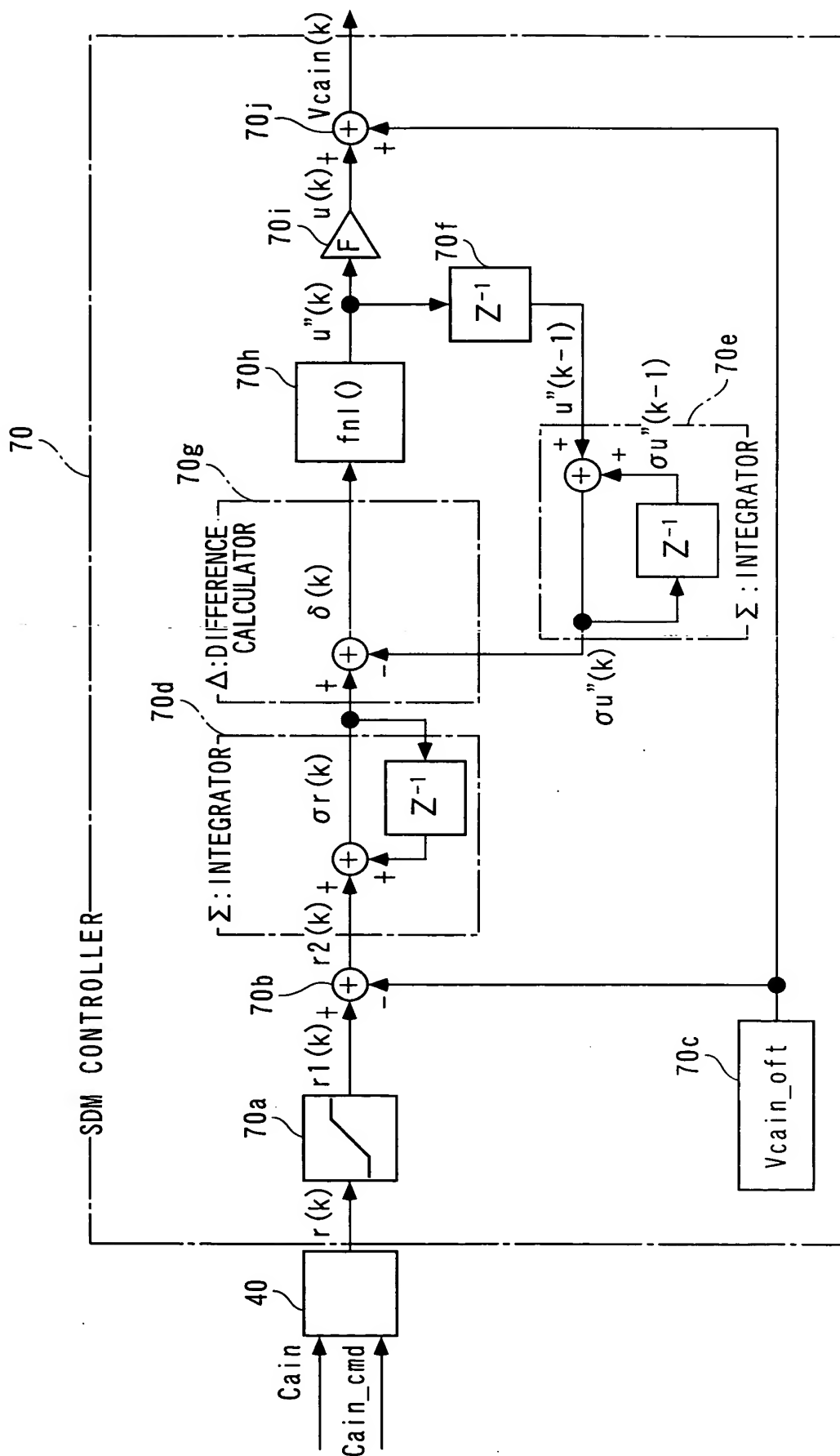


FIG. 21

1A



F I G. 2 2

$$r1(k) = \text{Lim}(r(k)) \quad \dots\dots (22)$$

$$r2(k) = r1(k) - V_{\text{cain_oft}} \quad \dots\dots (23)$$

$$\sigma r(k) = \sigma r(k-1) + r2(k) \quad \dots\dots (24)$$

$$\sigma u''(k) = \sigma u''(k-1) + u''(k-1) \quad \dots\dots (25)$$

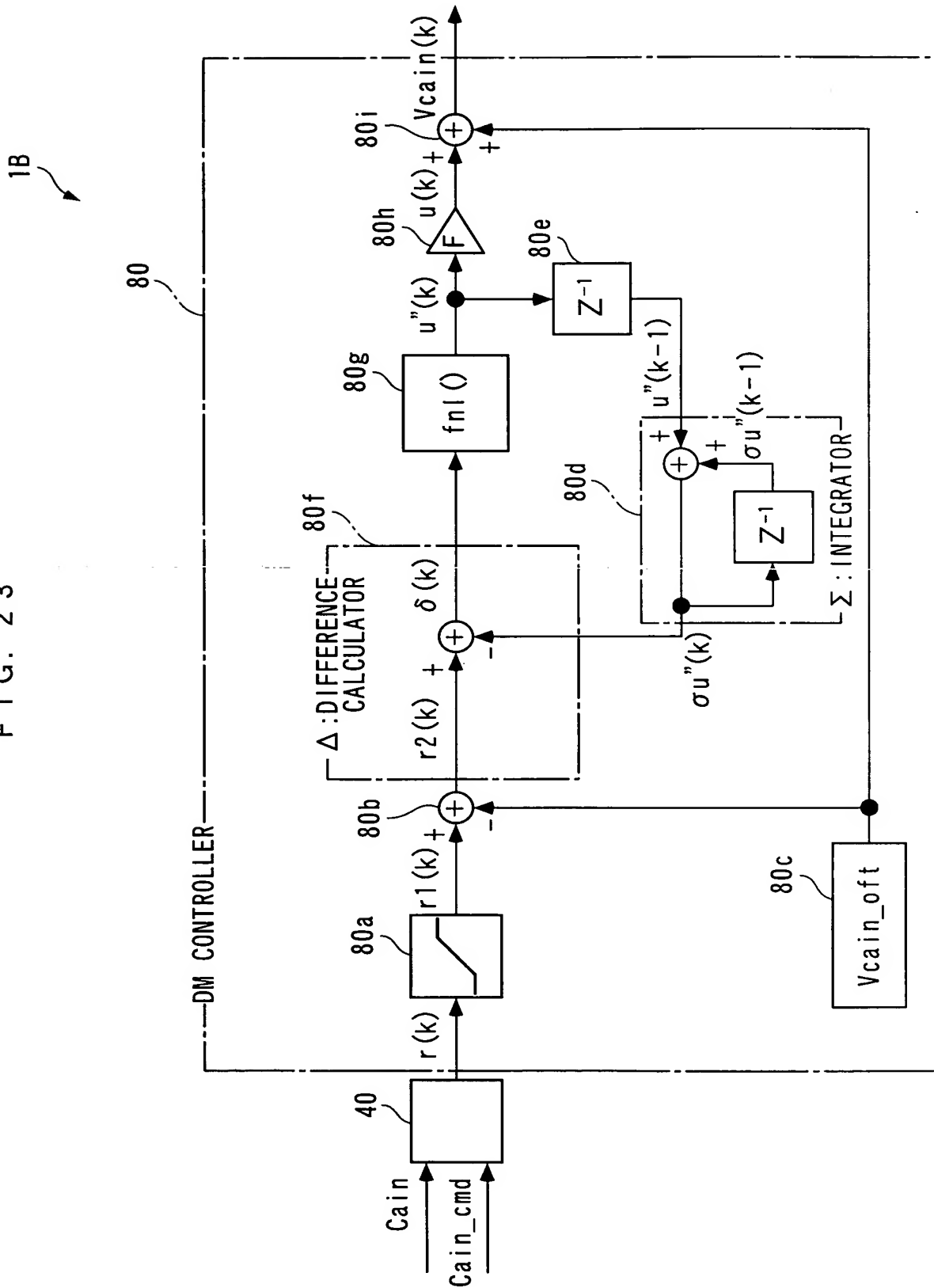
$$\delta(k) = \sigma r(k) - \sigma u''(k) \quad \dots\dots (26)$$

$$u''(k) = \text{fnl}(\delta(k)) \quad \dots\dots (27)$$

$$u(k) = K_{\text{DSM}} \cdot u''(k) \quad \dots\dots (28)$$

$$V_{\text{cain}}(k) = V_{\text{cain_oft}} + u(k) \quad \dots\dots (29)$$

FIG. 23



F I G. 2 4

$$r1(k) = \text{Lim}(r(k)) \quad \dots\dots (30)$$

$$r2(k) = r1(k) - V_{\text{cain_oft}} \quad \dots\dots (31)$$

$$\sigma u''(k) = \sigma u''(k-1) + u''(k-1) \quad \dots\dots (32)$$

$$\delta(k) = r2(k) - \sigma u''(k) \quad \dots\dots (33)$$

$$u''(k) = \text{fnl}(\delta(k)) \quad \dots\dots (34)$$

$$u(k) = K_{\text{DSM}} \cdot u''(k) \quad \dots\dots (35)$$

$$V_{\text{cain}}(k) = V_{\text{cain_oft}} + u(k) \quad \dots\dots (36)$$

FIG. 25

